



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Charles D. Baker
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November 21, 2016

Mr. Roy Whittaker
Tech-Etch, Inc.
45 Aldrin Road
Plymouth, MA 02360

RE: Plymouth
Transmittal No.: X271493
Application No.: SE-16-019
Class: SM-50
FMF No.: 131354
AIR QUALITY PLAN APPROVAL

Dear Mr. Whittaker:

The Massachusetts Department of Environmental Protection (“MassDEP”), Bureau of Air and Waste, has reviewed your Non-major Comprehensive Plan Application (“Application”) listed above. This Application concerns the proposed metal plating, washing, cleaning, and paint spray operations at your manufacturing facility located at 45 Aldrin Rd. in Plymouth, Massachusetts (“Facility”). The Application bears the seal and signature of Matthew Melvin, Massachusetts Registered Professional Engineer Number 52333.

This Application was submitted as required by Administrative Consent Order with Penalty and Notice of Noncompliance ACOP-SE-16-9001-27A, dated April 20, 2016, and in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 “Air Pollution Control” regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-O, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP’s review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator (“Permittee”) must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

The Facility produces precision parts and flexible circuits using a wide variety of manufacturing methods including chemical etching, plating, and spray coating.

Application No. SE-16-019 was submitted, as required by Administrative Consent Order No. ACOP-SE-16-9001-27A, for the operation of additional plating and etching lines, as well as cleaning and paint spray booth processes.

All plating, etching, and solvent baths are grouped into a single Emission Unit EU (No. 1) called General Manufacturing. Process lines are laid out in various rooms designated by the color of the floor or the operation within the room. At the time of this approval, there are ten rooms, each with various combinations of plating, acid/caustic, and solvent baths. EU2 consists of using a spray bottle to apply a solution of acetone. In EU3, the Permittee uses four paint booths to apply a specialty coating (with specific conductivity and protective properties) to medical devices.

This Plan Approval, Tr. No. X271493, supplements the 50% Facility Emission Cap Notification, a form processed by MassDEP on September 11, 1997, and limits the emissions of any single Hazardous Air Pollutant to less than or equal to 5 tons per year.

The Permittee has indicated the Facility is subject to Title 40 Code of Federal Regulation (CFR) Part 63 Subpart WWWW – National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations. Since MassDEP has not accepted delegation for Subpart WWWW for sources which are not subject to 310 CMR Appendix C, the Permittee is advised to consult with EPA Region 1 at 5 Post Office Square, Suite 100, Boston, MA 02109-3912, telephone: (617) 918-1111. Other applicable requirements may include notification, record keeping, and reporting requirements.

In addition to complying with the operational, production, and emission limits contained in Table 2 below, the Best Available Control Technology (BACT) for this Application is defined in Table 2 and consists of a) best management practices, b) opening cleaning containers only when being filled, and keeping wet rags in closed containers when not in use, and c) operating the paint spray booths in accordance with the requirements of 310 CMR 7.03(16)(d) through (k), and pollution prevention.

BACT for the coating used in the Permittee's paint spray booths is based on 1) specific electrical conductivity and protective properties necessary for implanted medical devices and their interfaces, and 2) the Food and Drug Administration (FDA) approval for this application.

In addition to the Approved equipment listed in Table 1 of this Approval, the following proposed equipment are not subject to plan approval:

- A previously installed welding operation that meets the exemption criteria contained in 310 CMR 7.02(2)(b)(7);
- A previously installed ultrasonic bath using isopropanol, that meets the exemption criteria contained in 310 CMR 7.02(2)(b)(7);
- A vapor degreaser using n-Propyl Bromide (nPB) that meets the exemption criteria contained in 310 CMR 7.03(8), which requires operation in a manner consistent with 310 CMR 7.18(8)(b).
- Three natural gas fired boilers that each have a maximum heat input of less than 10 MMBtu/hr and meet the exemption criteria contained in 310 CMR 7.02(2)(b)15.

The Permittee has an obligation to maintain appropriate records and perform any necessary reporting to maintain compliance with respective exempt status.

2. EMISSION UNIT IDENTIFICATION

Each Emission Unit (“EU”) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU	Description	Design Capacity	Pollution Control Device (PCD)
1	General Manufacturing (includes Solvent, Acid/Etching, and Plating Baths)	n/a	none
2	General Cleaning	n/a	none
3	4 Paint Spray Booths, combined	n/a	HVLP spray gun (or equivalent) Fabric Filter

Table 1 Key:

EU = Emission Unit Number
HVLP = High Velocity Low Pressure

n/a = not applicable

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2:

Table 2			
EU	Operational / Production Limit	Air Contaminant	Emission Limit
1	1. 420 gallons of VOC-containing solvent usage per month.	VOC ^(Note 2)	8.7 TPY 1.8 TPM ≤ 8.4 lbs of VOC per gallon of solvent
	2. 2,070 gallons of VOC-containing solvent usage per consecutive 12-month period.		
	3. 150 gallons of HAP-containing solvent usage per month.	HAP (total) ^(Notes 3, 4)	5.6 TPY 1.1 TPM ≤ 7.96 lbs of HAP per gallon of solvent ^(Note 6)
	4. 710 gallons of HAP-containing solvent usage per consecutive 12-month period.		
2	5. 48,713 panels plated per month. ^(Note 1)	PM, PM ₁₀ , PM _{2.5} ^(Note 5)	7.8 TPY 1.6 TPM
	6. 243,562 panels plated per consecutive 12-month period. ^(Note 1)	Visible Emissions	0% Opacity
	7. 73 gallons of solvent usage per month.	Non-criteria pollutants (i.e. acetone)	1.2 TPY 0.2 TPM ≤ 6.6 lbs of non-criteria pollutant per gallon
	8. 363 gallons of solvent usage per consecutive 12-month period.		
3	9. 460 gallons of coating applied per month.	VOC	7.6 TPY 1.5 TPM ≤ 6.60 lbs of VOC per gallon of coating, as applied. ≤ 89.6 lbs of VOC per gallon of solids, as applied. ^(Note 7)
	10. 2,300 gallons of coating applied per consecutive 12-month period.		
		HAP (total)	3.9 TPY 0.8 TPM ≤ 3.37 lbs of HAP per gallon of coating, as applied.
		PM, PM ₁₀ , PM _{2.5}	0.01 TPY 0.003 TPM
		Visible Emissions	0% Opacity

Table 2 Key:

EU = Emission Unit Number
TPM = tons per month
PM = Total Particulate Matter
HAP (total) = total Hazardous Air Pollutants
PM_{2.5} = Particulate Matter less than or equal to 2.5 microns in diameter

lb(s) = pound(s)
TPY = tons per consecutive 12-month period
PM₁₀ = Particulate Matter less than or equal to 10 microns in diameter
VOC = Volatile Organic Compounds
≤ = less than or equal to

Table 2 Notes:

1. Plating emission factor of 0.02287 lb HAP/ 3.0 ft² panel, and 0.04762 lb PM/per 3.0 ft² panel, based on the worst-case calculations for tin electroplating, as contained in AP-42, Section 12.20.
2. VOC emissions from acid/etching bath and solvent bath operations.
3. HAP emissions from acid/etching bath, solvent bath, and plating operations.
4. The largest individual HAP is butyl carbitol, also known as diethylene glycol monobutyl ether.
5. PM, PM₁₀, and PM_{2.5} emissions from acid/etching bath and plating operations.
6. Represents butyl carbitol, a component of the "Poly Solv DB/Butyl" solution.
7. Approved for implanted medical devices and their interfaces only.

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5:

Table 3	
EU	Monitoring and Testing Requirements
1	<ol style="list-style-type: none"> 1. The Permittee shall monitor the following items: <ol style="list-style-type: none"> a. Number of panels plated. b. HAP and VOC concentration (in pounds per gallon) for the solvents used in the solvent baths. c. Gallons used of HAP- and VOC-containing solvents used in the solvent baths.
2	<ol style="list-style-type: none"> 2. The Permittee shall monitor the following items: <ol style="list-style-type: none"> a. Non-criteria pollutant concentration (in pounds per gallon) used for general cleaning. b. Gallons used of non-criteria pollutant for general cleaning.
3	<ol style="list-style-type: none"> 3. The Permittee shall monitor the following items: <ol style="list-style-type: none"> a. HAP and VOC concentration (in pounds per gallon of coating) for the coatings applied. b. VOC concentration (in pounds per gallon of solids) for the coatings applied. c. Gallons used of HAP- and VOC-containing coatings applied.
Facility-wide	4. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	5. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and Regulation 310 CMR 7.13.
	6. At least 30 days prior to emission testing, the Permittee shall submit to MassDEP for approval a stack emission pretest protocol.
	7. Within 45 days after emission testing, the Permittee shall submit to MassDEP a final stack emission test results report.

Table 3 Key:

EU = Emission Unit Number
VOC = Volatile Organic Compounds
MassDEP = Massachusetts Department of Environmental Protection

HAP = total Hazardous Air Pollutants
CMR = Code of Massachusetts Regulations
USEPA = United States Environmental Protection Agency

Table 4	
EU	Record Keeping Requirements
Facility-wide	1. The Permittee shall maintain adequate records on-site to demonstrate compliance status with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve-month period (current month plus prior eleven months). These records shall be compiled no later than the 15 th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping .
	2. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	3. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) and PCD(s) approved herein on-site.
	4. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	5. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s), PCD(s), and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	6. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	7. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	8. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

EU = Emission Unit Number
SOMP = Standard Operating and Maintenance Procedure
MassDEP = Massachusetts Department of Environmental Protection

PCD = Pollution Control Device
USEPA = United States Environmental Protection Agency

Table 5	
EU	Reporting Requirements
Facility-wide	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall notify the Southeast Regional Office of MassDEP, BAW Permit Chief by telephone: 508-946-2817, or email: SERO.Air@massmail.state.ma.us, as soon as possible, but no later than three (3) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to the Permit Chief at MassDEP within ten (10) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. The Permittee shall report to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.

Table 5 Key:

EU = Emission Unit Number
MassDEP = Massachusetts Department of
Environmental Protection

BAW = Bureau of Air and Waste
CMR = Code of Massachusetts Regulations

4. SPECIAL TERMS AND CONDITIONS

- A. The Permittee is subject to, and shall comply with, the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU	Special Terms and Conditions
3	1. The Permittee shall operate the existing paint spray booths consistent with 310 CMR 7.03(16)(d) through (k).
	2. Spray guns shall be cleaned in a device that minimizes solvent evaporation during the cleaning, rinsing, and draining operations; re-circulates solvent during the cleaning operation so that the solvent is reused; and collects spent solvent in a container with a tight fitting cover so that it is available for proper disposal or recycling. No halogenated solvents shall be used in spray gun cleaning.

Table 6	
EU	Special Terms and Conditions
Facility-wide	3. The Permittee shall store and dispose of volatile organic compounds in a manner which will minimize evaporation to the atmosphere. Proper storage shall be in a container with a tight fitting cover.
	4. The Permittee shall conduct all handling and transferring operations involving VOC, HAP and/or VOC exempt organic compound containing solvents in a way that minimizes spills and releases of VOC, HAP and/or VOC exempt organic compounds.
	5. The Permittee may reconcile the VOC, HAP and/or non-criteria pollutants contained in any hazardous waste shipped during a month when determining monthly emissions. The facility shall maintain hazardous waste disposal records and purchase records for VOC, HAP and/or VOC exempt organic compound containing materials for this purpose. Such records shall verify the VOC, HAP and/or specific VOC exempt organic compounds quantity present in the waste being shipped if reconciling monthly emissions.
	6. This Plan Approval, SE-16-019, Transmittal. No. X271493, supplements the 50% Facility Emission Cap Notification, a form processed by MassDEP on September 11, 1997, which remains in effect. The Permittee shall continue to maintain records to demonstrate compliance with the emission limits contained in the processed 50% Facility Emission Cap Notification form, and 310 CMR 7.02 (11) <u>50% or 25% Facility Emission Cap Notification</u> .

Table 6 Key:

EU = Emission Unit Number
TPY = tons per consecutive 12-month period
TPM = tons per month
CFR = Code of Federal Regulations
VOC = Volatile Organic Compounds

CFR = Code of Federal Regulations
TPY = tons per consecutive 12-month period
HAP = total Hazardous Air Pollutants and/or maximum single Hazardous Air Pollutant

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including, but not limited to, rain protection devices known as “shanty caps” and “egg beaters.”
- C. The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Nominal Stack Gas Exit Velocity Range (feet per second)	Nominal Stack Gas Exit Temperature Range (°F)
1	30	2	18 - 25	77 - 78
1	30	2	70 - 85	77 - 78
1	30	2.5	55 - 75	77 - 78
1	30	1.6	70 - 85	60 - 70
1	30	3	65 - 85	78 - 78
1	30	3	75 - 85	77 - 77
3	33	1.5	15 - 25	77 - 78

Table 7 Key:

EU = Emission Unit Number

°F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.

- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain “Fail-Safe Provisions,” which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the Application submittal.

Should you have any questions concerning this Plan Approval, please contact Dan Kamieniecki by telephone at 508-946-2717, or in writing at the letterhead address.

*This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.*

Thomas Cushing
Section Chief
Bureau of Air and Waste

Enclosure

ecc: Plymouth Board of Health/Dept of Health
Plymouth Fire Department
MassDEP/Boston – Y. Tian
MassDEP/SERO – M. Pinaud, L. Ramos, D. DiSalvio
Tech-Tech, Inc. – D. Brisbois
Carpaccio Environmental Engineering – C. Silverman, M. Melvin